

## CLAIMS

1. A method for identifying a gene product function, wherein the method comprises: adding at least one gene product to a compound cocktail; reacting the mixture; detecting a change that occurred in the compound cocktail; and thereby identifying the function of the gene product.
2. The method of claim 1, wherein the at least one gene product is obtained by expressing at least one gene encoding the gene product.
3. The method of claim 1 or 2, wherein the compound cocktail is a metabolic compound cocktail.
4. The method of claim 3, wherein the metabolic compound cocktail comprises a compound(s) selected from the group consisting of fructose-1,6-phosphate, 6-phosphogluconate, 2,3-phosphoglycerate, glucose-1-phosphate, fructose-6-phosphate, glucose-6-phosphate, ribulose-5-phosphate, ribose-5-phosphate, erythrose-4-phosphate, isocitric acid, citric acid, 2-phosphoglycerate, 3-phosphoglycerate, cis-aconitic acid, phosphoenolpyruvic acid, succinic acid, fumaric acid, lactic acid, and pyruvic acid.
5. The gene product function identification method of claim 1 or 2, wherein the compound cocktail is a cell extract.
6. The method of any one of claims 1 to 5, wherein the change is detected using a capillary electrophoresis-mass spectrometer (CE/MS).
7. A method for identifying a binding substance to a gene product, wherein the method comprises: adding at least one gene product to a compound cocktail; reacting the mixture; detecting a change that occurred in the compound cocktail; and thereby identifying a binding substance of the gene product.
8. A kit for identifying a gene product function, wherein the kit comprises a compound cocktail, and the function is identified by adding at least one gene product to the compound cocktail, reacting the mixture, and detecting a change occurred in the compound cocktail.
9. The kit of claim 8, wherein the compound cocktail is a metabolic compound cocktail.

10. The kit of claim 9, wherein the metabolic compound cocktail comprises a compound(s) selected from the group consisting of fructose-1,6-phosphate, 6-phosphogluconate, 2,3-phosphoglycerate, glucose-1-phosphate, fructose-6-phosphate, glucose-6-phosphate, ribulose-5-phosphate, ribose-5-phosphate, erythrose-4-phosphate, isocitric acid, citric acid,
- 5 2-phosphoglycerate, 3-phosphoglycerate, cis-aconitic acid, phosphoenolpyruvic acid, succinic acid, fumaric acid, lactic acid, and pyruvic acid.
11. The kit of claim 8, wherein the compound cocktail is a cell extract.
- 10 12. A kit for identifying a binding substance of a gene product, wherein the kit comprises a compound cocktail, and the binding substance is identified by adding at least one gene product to the compound cocktail, reacting the mixture and detecting a change that occurred in the compound cocktail.